

In the claims:

Please substitute the following full listing of claims for the claims as originally filed or most recently amended.

1. (Canceled)

2. (Currently Amended) A method as in claim ~~±~~ 38 wherein ~~said cladding step includes~~ including the further step of:

~~heating said area of said die body surface,~~
and

~~introducing said blade material into the heated area while heating said area and building said blade of said blade material outwardly from said surface in a single pass of said laser.~~

3. (Currently Amended) A method as in claim ~~±~~ 38 wherein the die body surface is cylindrical and said heating step includes including heating ~~said an~~ area with said laser and introducing said blade material into the heated area while heating said area to completely build said blade on said cylindrical die body surface.

4. (Currently Amended) A method as in claim ~~±~~ 38 wherein said applying step includes including introducing ~~cladding~~ powder comprising a carbide into the heated area while heating said area for building said blade.

5. (Currently Amended) A method as in claim ~~±~~ 38 wherein said ~~shaping~~ machining step includes shaping said blade by electrical discharge machining.

6. (Currently Amended) A method as in claim \pm 38 wherein said ~~shaping~~ machining step includes shaping said blade by milling.

7. (Currently Amended) A method as in claim \pm 38 wherein said ~~shaping~~ machining step includes shaping said blade by grinding.

8. (Currently Amended) A method as in claim \pm 38 including the further step of heat treating said blade.

9. (Currently Amended) A method as in claim \pm 38 including the further step of cryogenic ~~treating~~ treatment of said blade.

10. (Currently Amended) A method as in claim \pm 38 wherein said die body material is of less than 60 Rockwell C hardness and said ~~cladding~~ applying step includes:

~~scanning a laser beam along said die body surface comprising a low grade material of less than about 60 Rockwell C hardness, in a path corresponding to a desired blade pattern;~~

~~melting said die surface along said path; and~~
introducing a carbide-containing high grade material of at least about 60 Rockwell C hardness into said path pattern while heating said die body material along said path pattern to build up a die blade in said pattern.

11. (Original) A method as in claim 10 including heat treating said die blade after said shaping to harden said die blade.

12. (Currently Amended) A method as in claim ~~±~~ 38 wherein said ~~introducing~~ applying step includes introducing cladding powder selected from the group consisting of D2 steel, CMP10V steel, CMP15V steel and a nickel based superalloy with 30-40% volume fraction of tungsten carbide.

13. (Previously Presented) A process for producing a cutting die having a metal base which carries a sharpened ridge extending along a predetermined path thereon, said ridge being of a composition distinct from said base, comprising the steps of;

- a) moving a laser beam along said path to heat the metal base and simultaneously supplying powdered metal having a composition distinct from said base to said predetermined path via a tube moving concurrently with said laser beam so that said laser beam melts a thin layer of the metal base along said path and also melts the metal powder being delivered to the base and thus forms a band of fused metal powder along said path,
- b) repeating steps a) so as to heat and melt a thin layer of the previously deposited metal along with additional metal powder to form an additional layer metallurgically bonded to the first layer, and
- c) repeating step b) to produce multiple layers until a ridge of metal is formed along said path, said ridge having a substantially uniform height and width, and
- d) sharpening the ridge so formed to suit it for use in cutting.

14. (Previously Presented) A process according to claim 13, wherein the metal base is cylindrical, the process including rotating the base to provide one component of relative motion between said base and said laser beam.

15. (Previously Presented) A process according to claim 13, wherein after said sharpening step, said ridge is heat treated using heat from said laser beam.

16. (Previously Presented) A process for producing a cutting die having a metal base which carries a sharpened ridge extending along a predetermined path thereon, said ridge being of a composition distinct from said base, comprising the steps of;

a) moving a laser beam along said path to heat the metal base and simultaneously supplying powdered metal having a composition distinct from said base to said predetermined path via a tube moving concurrently with said laser beam so that said laser beam melts a thin layer of the metal base along said path and also melts the metal powder being delivered to the base and thus forms a band of fused metal powder along said path,

b) repeating steps a) so as to heat and melt a thin layer of the previously deposited metal along with additional metal powder to form an additional layer metallurgically bonded to the first layer, and

c) repeating step b) to produce multiple layers until a ridge of metal is formed along said path, and

d) sharpening the ridge so formed to suit it for use in cutting.

17-19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Currently Amended) A method as in claim ~~22~~ 43 including a further step of heat treating said blade after said ~~shaping~~ machining step.

26. (Currently Amended) A method as in claim ~~22~~ 43 including a further step of cryogenic ~~treating~~ treatment of said blade after said ~~shaping~~ machining step.

27. (Canceled)

28. (Canceled)

29. (Canceled)

30. (Currently Amended) The method as in claim ~~±~~ 38 wherein said ~~introducing~~ applying step includes feeding said blade material by a feeder coaxial with a beam of said laser to heat said blade material while heating said area.

31. (Currently Amended) The method as in claim \pm 38 wherein said die body is cylindrical, the method including rotating said die body to provide one component of relative motion between said die body and said laser.

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Canceled)

38. (New) A method of manufacturing a cutting die, said cutting die including a die body and a cutting blade formed in a pattern and integral with said die body and extending outwardly from said die body, said method comprising steps of:

a.) heating said die body with a laser to form a puddle of melted die body material in an area in the surface of said die body along a path corresponding to said pattern;

b.) applying a blade material in the form of a powder to said area of said puddle to form a deposit comprising said blade material extending from said surface, said blade material having a hardness greater than said die body material;

c.) continuing performance of steps a.) and b.) along the entirety of said pattern; and

d.) machining at least side surfaces of said deposit comprising blade material to form said blade corresponding to said pattern and extending from said die body surface.

39. (New) A method as recited in claim 38, wherein said deposit comprising blade material is formed having a generally half elliptical cross-section.

40. (New) A method as recited in claim 39, wherein said machining step forms a cross-section having substantially linear sides within said half elliptical cross-section of said deposit comprising blade material.

41. (New) A method as recited in claim 40, wherein said cross-section having substantially linear sides approximates a trapezoid.

42. (New) A method as recited in claim 38, including further steps of

repeating steps a.), b.) and c.) prior to performing step d.) to build up a deposit of blade material having a near net cross-sectional shape, said near net shape approximating the cross-sectional shape to be developed by step d.), in multiple layers.

43. (New) A method as recited in claim 38 wherein said pattern includes portions which intersect with other portions of said pattern.

44. (New) A cutting die including a die body and a cutting blade formed in a pattern and integral with said die body and extending outwardly from said die body, said cutting die being formed by steps of:

a.) heating said die body with a laser to form a puddle of melted die body material in an area in the surface of said die body along a path corresponding to said pattern;

b.) applying a blade material in the form of a powder to said area of said puddle to form a substantially half elliptical deposit comprising said blade material extending from said surface, said blade material having a hardness greater than said die body material;

c.) continuing performance of steps a.) and b.) along the entirety of said pattern; and

d.) machining at least side surfaces of said deposit comprising blade material to form said blade corresponding to said pattern and extending from said die body surface.